



Information Systems For Decision Making

Background

Understanding and making optimal use of information technology is a critical challenge facing Illinois' highway safety professionals. Knowing the "who, what, when, where, why, and how" of traffic crashes is the foundation of a comprehensive traffic safety analysis system. In order to help protect public safety, proper understanding and use of integrated traffic records is necessary to plan and assess safety programs and influence resources.

Crash, traffic, citation, medical, judiciary, and driver records must be available to enable proper decision-making for applying limited resources to safety improvements and providing better services to taxpayers. Furthermore, these data influence effective development and implementation of safety policies and projects. This effort requires coordination among all stakeholders.

A complete traffic records program is necessary for planning, problem identification, operational management or control, and evaluation of a state's highway safety activities. This program should include and provide information for the entire state. Its functionality is basic to the implementation of all highway safety countermeasures and is the key ingredient to its effective and efficient management.

Timely and accurate crash data is vital to the analysis necessary for successful highway safety public information and enforcement programs. In order to provide easy access to the data, a comprehensive data mining and reporting system, as well as appropriate staffing, must be pursued.

A new Crash Information System (CIS) is being developed for Illinois that will, as a whole, reduce manual processes and greatly increase the flexibility and efficiency of the data system itself. It is incumbent on IDOT to further equip key users with the appropriate mechanism to query the data as the sheer volume of data within the organization can be overwhelming. Yet these data alone cannot give Illinois the advantage needed to reduce traffic-related deaths and life-altering injuries. The measure of any data warehousing solution is its ability to derive knowledge from the data. This challenge is met with the ability to identify patterns, trends, and relationships from volumes of information too large to be processed by human analysis alone. All of these challenges must be met without having to turn basic business users into computer programmers.

In addition to the new CIS, the Mobile Capture and Reporting (MCR) system is being implemented in Illinois law enforcement communities. This system provides for electronic capture and submission of crash reports. In 2004, over 532,000 paper-copy crash reports were submitted to IDOT's Division of Traffic Safety. This number alone illustrates the advantages to be gained from the MCR system, which is currently used by 470 Illinois State Police (ISP) troopers. Additionally, the MCR system is in pilot mode with ISP District 15, the Illinois Tollway, and the city of Peoria. The rollout of MCR within county and municipal law enforcement agencies will continue through the end of 2005. When completed, the system will improve the quality of crash data and reduce the amount of manual processes currently required.

Recent Implemented Strategies

- Continued operation of the new Traffic Records Coordinating Committee to review all crash databases and identify ways to integrate them.
- Introduced MCR to ISP.
- Continued implementation of IDOT's Highway Safety Plan initiatives:
 - Funded development of an effective Injury Surveillance System (ISS) and web-based system
 - Funded local agency MCR training
 - Enhanced automated crash data transmission capabilities
- Regulation and maintenance of the Illinois Prehospital Care Report Database, the Illinois Trauma Registry, the Illinois Head and Spinal Cord Injury Registry, and the Illinois Violent Injury Registry.

Challenges

- Data capture of exact crash locations.
- Training law enforcement officers on crash reporting.
- Tracking of injuries resulting from crashes.
- Lack of user-friendly and easily-accessible crash data.
- Lack of rapid access to Secretary of State driver's license information.
- Lack of crash data and data analysis understanding.
- Transformation from a "total crash" system to a "crash severity" system.
- Limited system-wide approach to identify problem areas.
- Local information capturing.
- Limited resources (funding and staff).

Proposed Strategies

- Improve the quality and timeliness of crash data.
- Improve location coding for all rural roads and residential streets.
- Implement a continuously-operating help desk to accommodate law enforcement personnel in crash reporting.
- Offer the latest technology to all state and local law enforcement agencies for electronic crash data collection.
- Consider wireless citations as a potential future application.
- Enhance MCR to:
 - Ensure compatibility with multiple software and hardware platforms and multiple wireless environments
 - Provide the appropriate capacity to accommodate the large number of law enforcement officers
 - Develop and implement branding and marketing as a necessary tool for crash reporting
 - Make attractive and desirable to all law enforcement agencies
 - Enhance to provide web services across all communication barriers

- Identify and integrate all crash databases for easy user access.
- Assess and improve current active information systems to meet user needs.
- Develop a system-wide approach to identify problem areas.
- Use CODES to link crash data to medical databases.
- Enhance the Traffic Records Coordinating Committee to include all partners involved with crash-related data so it can be shared and used to identify more effective crash mitigating solutions.
- Continue implementing and developing IDOT's Highway Safety Plan initiatives.
- Investigate all recent implemented strategies for success.
- Improve data collection for all users through the newly implemented web-based Illinois Trauma Registry, collaboration with IDOT on the Crash Outcomes Data Reporting System (CODES), and investigate the feasibility of incorporating the National EMS Information System (NEMSIS) core data set into the Illinois Prehospital Care Report Database.
- Encourage EMS providers to accurately document occupant restraint usage and alcohol/substance use for inclusion in the Illinois Prehospital Care Report Database.